

# IUGN 14

## NOTES A ROUND TUIT SMALL ADS

### ICOMM 1

### FORMAT.COM, changes to program

### ISBUS, tracking error

### TAECOMM NEWS FILE

### 16 CHANNEL GENERATOR FOR ANALOGUE MUSIC SYNTHESISER CONTROL

### HITACHI HD64180 CPU

### A SESSION WITH TAECOMM

### DAVIDS PAGE

### LETTERS

### DISK SOFTWARE TAPE SOFTWARE

### CONTACTS STOP PRESS

## Page

2

3

8

9

10

11

12

13

18

19

21

22

**COPYRIGHT:**  
All published items remain the copyright of the originators. Members may use published items for their own enjoyment and education but must not describe as their own work or offer for sale any item or part of any item published herein without the express permission of the originator.

**DATA PROTECTION ACT 1985:**  
Details of the members of the IUGN are held on computer file. Each member may view, alter or destroy any data held on him/her within that file. To obtain a copy of your file please send a stamped addressed envelope to the Editor. Your subsequent wishes regarding that data will be honoured without question.

## NOTES

With great sadness I have learnt of the sudden death of Roy Barsby, who was killed in a road accident. Roy was building towards disks and had been working on the project for about a year. Roy will be missed by many of us.

\*\*\*\*\*

Recently released from Greenbank is the SBC-1 card. It is a "Single Board Computer" card. This very versatile card contains a 280A, Ram, Rom and port I/O all on one board. You program it using a standard Interak. Burn the program into a Rom and the card can be fitted into the application hardware as a free standing single board computer. Alarm systems, robot controllers and central heating controllers spring to mind as possible applications.

\*\*\*\*\*

Also available in prototype diagram form, but soon to be tracked as a board, is the COM-1 card. This is a programmable RS232C interface. Programmable means all aspects can be controlled by the software, from individual receive/transmit baud rates (50 through 19200 in 16 steps), to the number of bits in the serial byte. See the ICOMM program in this issue for the port map of the card. In the ICOMM application, it is controlling a Modem to talk to TAECON, the Interak BB. But the card is capable of any RS232C application and can act as a Data Communications Equipment (DCE-device) or a Data Terminal Equipment (DTE-device).

\*\*\*\*\*

Whilst referring to Modem's, David of Greenbank can now supply you with one, give him a ring for details. On offer is the World Series range from Miracle Technology. You don't need a disk system and CP/M to access TAECON only a Modem, COM-1 and the ICOMM software to put your Interak on Line to the world.

\*\*\*\*\*

CBBS NORTH EAST has a new phone number. 02204-3555. Hours 1430 to 0900.

\*\*\*\*\*

Some people have experienced problems with ASM64 returning to ZYMON. This is done by a RST 0 instruction at location 1187 (versions may vary), but look for a C7H code in that area of the code. Usually when I have investigated this problem the constructed program has damaged ZYMON in low store.!!

\*\*\*\*\*

We cannot supply ASM64 any longer as there was a possibility of copyright infringement, and until that is sorted out it cannot be distributed. Sorry.

The CPMUGUK can provide an assembler and TAECON can supply a disassembler via the Download menu.

\*\*\*\*\*

The User Group is supposed to be having a meeting sometime soon. When we do I will try to pass on what was decided. If you would like to attend the meeting please write to Tom our secretary (enc.a SAE please) and he will advise you of the date/place. At this time neither have been decided so don't expect an immediate reply.

\*\*\*\*\*

Mr Charlie Bridgstock, 32 Wimborne Ave, Thingwall, Wirral, Merseyside, L61 7UL has agreed to act as a public domain disk librarian. He will let me know when he is ready to go live. Meanwhile he will be pleased to receive any public domain work that you might have. Thanks Charlie, this will satisfy a great need in the user group.

\*\*\*\*\*

Bob Eldridge.

## STEVE PADLEY'S ROUND TUIT

Here's a little something for all readers to help them with there work.

FOR GENERAL CIRCULATION  
AT LONG LAST THERE IS SUFFICIENT  
QUANTITY FOR EVERYONE TO HAVE THEIR  
OWN. CUT THIS OUT AND GUARD IT WITH YOUR  
LIFE. THESE TUIITS HAVE BEEN HARD TO COME BY  
ESPECIALLY THE ROUND ONES.....

## A ROUND TUIT

THIS IS AN INDESPENSIBLE ITEM, IT WILL HELP  
YOU BECOME A MUCH MORE EFFICIENT WORKER, FOR  
YEARS WE HAVE HEARD PEOPLE SAY: "I'LL DO  
IT AS SOON AS I GET A ROUND TUIT". NOW  
THAT YOU HAVE A ROUND TUIT OF YOUR  
VERY OWN, MANY THINGS THAT NEED  
DOING WILL NOW BE ACCOMPLISHED.

I HOPE THIS WILL GIVE PEOPLE THE HELP THEY NEED.

STEVE PADLEY.

## SMALL ADS

## FOR SALE

Brother HR5 thermal printer with RS232C interface £55.00p.

5" green screen monitor, composite input £35.00p  
19"x3U rack with ASTEC Multirail PSU in steel Case £75.00p

ASC11 keyboard housed in a steel case £20.00p

Cards for sale are :-

M2B3 @ £25, VDUK @ £35, LKP1 @ £20, DT11 @ £30,  
3xMXD2 @ £10 ea, PS0 on DIP @ £20.

Or £250.00p the lot.

Phone 0634-31158 after 6pm or write to :-

P.MANSHIP,

17 GREENVALE GARDENS, BILLINGHAM, KENT, ME8 6HB.

## FOR SALE

Complete Interak System.

32k Ram (2xMXD2), M2B3+ZYMON, VDUK, DTI, ZYBASIC,  
16 CHANNEL FAST DAC, 3 CHANNELS VCF/VCA, SHAPERS,  
LEADS, TV, MANUALS, PSU, CASE & SOCKETS.

Offers to:- ALAN, EAST GRINSTEAD, 0342-312329  
after 6pm.

## FOR SALE

Oric MCP 40 by 4 color printer/plotter (Centronics)  
£ 45.00p

Shinwa CP80 printer (Fully Epson compatible)  
£125.00p

Advance Gould Alpha 4 digit multimeter bench mod  
£55.00p

Taylor 132 analogue multimeter £ 15.00p

Also considerable photographic equipment. Details  
on request.

MEL SAUNDERS, 7 DRUMCLIFF RD, THURNBY LODGE,  
LEICESTER, LE5 2LH.

```

; ICOMM
; Interak Communications program.
;
; A Bulletin Board access program for ZYMON based Interaks.
;
; This program is designed to allow non-disk owners of the
; Interak computer to access bulletin boards. Disk users
; will of course use UKM7 from the CPMUGUK.
; The program works on an Interak 1 with a COM-1 card and
; a BT approved Modem.
; ICOMM enables you to access a bulletin board, display,
; print and spool the transaction onto the printer, screen
; and memory respectively.
; The memory buffer can be saved ( using ZYMON ) for later
; loading and inspection.
; At entry a menu of options is given.
; When the transaction with the BB is completed use CTRL_D
; to go to the menu and note the buffer Start-End addresses.
; ESC back to ZYMON and use the Save command to put the
; buffer to tape. It can then be loaded and processed as
; required.
; To access Bulletin Boards using this program you need :-
; A MODEM capable of 300/300 operation.
; A COM-1 card from Greenbank.
;
; Bob Eldridge October 1986
;

0000 TRUE EQU 0
00FF FALSE EQU 0FFH

; ASCII equates
0000 BS EQU 8 ;Back space, cursor left
000A LF EQU 10 ;Line feed
0000 CR EQU 13 ;Carriage return
0020 SPACE EQU 32 ;Space
007F DEL EQU 127 ;Delete character, left
001B ESC EQU 27 ;Escape to Zymon.
0004 CTRL_D EQU 'D'-40H ;Display menu
0010 CTRL_P EQU 'P'-40H ;Printer toggle

; VDU 2K equates
F000 LINE1 EQU 0F000H
0010 LINES EQU 24
0040 COLS EQU 64
F5C0 LINE24 EQU LINE1+(COLS*(LINES-1))

; Port assignments
0006 PSTAT EQU 6 ;Printer status. Bit 7=TBMT
0007 PDATA EQU 7 ;Printer data
0040 KDATA EQU 40H ;LK1 Keyboard port
0020 USTAT EQU 20H ;Uart status port (read)
0020 UCONF EQU USTAT ;Uart config, (write)
0021 UDATA EQU 21H ;Uart data (read/write)
0022 MODIN EQU 22H ;Modem lines in (read)
0022 MODOUT EQU MODIN ;Modem lines out (write)
0023 UBAUD EQU 23H ;Uart baud rate adjust (write)

;-----
; Code begins
1000 ORG 1000H

1000 31AA12 INIT: LD SP,STACK ;Stack
1003 AF XOR A ;
1004 324512 LD (KEYCDE),A ;Clear keystore
1007 D840 IN A,(KDATA) ;Reset keyboard latch
1009 3E00 LD A,TRUE
100B 323D12 LD (SPOOLF),A ;Switch on memory spooling
100E 3EFF LD A,FALSE
1010 323C12 LD (HCOPLYF),A ;Switch off hardcopy
1013 3E20 LD A,2CH ;Configure Uart for..
1015 D320 OUT (UCONF),A ;.. 8 bits, 1 stop, no parity
1017 3E55 LD A,55H ;Set up baud rate to ..
1019 D323 OUT (UBAUD),A ;.. 300/300 duplex
101B CDFD11 CALL PRS ;Move down screen
101E 0D0A0D0A DEFB CR,LF,CR,LF,0
00
1023 C38610 JP MENU ;Print menu

1026 31AA12 MAINL: LD SP,STACK ;Reset loop from any entry depth
1029 D820 IN A,(USTAT) ;Get modem status
102B E640 AND 40H ;Mask for DAV
102D CA5710 JP Z,KEYTST ;If nothing from modem try keyboard
1030 D821 IN A,(UDATA) ;Get modem character
1032 CB7F BIT 7,A
1034 C22610 JP NZ,MAINL ;Don't print if 80H through FFH
1037 FE00 CP BS
1039 CA4B10 JP Z,PRINT ;Print "Back space"

```

```

103C FE0D      CP CR
103E CA4B10    JP Z,PRINT      ;Print "Carriage returns"
1041 FE0A      CP LF
1043 CA4B10    JP Z,PRINT      ;Print "Line feeds"
1046 FE20      CP SPACE
1048 DA2610    JP C,MAINL      ;Don't print if less than "Space"
104B CD0D11    PRINT: CALL CONOUT ;Character to screen
104E CD6911    CALL SPOOLD      ; -- to spool buffer
1051 CDB311    CALL HCOPI      ; -- to printer
1054 C32610    JP MAINL        ;And return to main loop

1057 CD0F12    KEYST: CALL KEYST ;Get keyboard status
105A B7        OR A           ;Set flags on input
105B CA2610    JP Z,MAINL      ;No key loop back
105E CD2912    CALL KEYIN      ;Get a character from the keyboard
1061 FE1B      CP ESC         ;If ESC key
1063 CA0000    JP Z,0          ;Exit to Zymon.
1066 FE10      CP CTRL_P      ;If ^P..
1068 C27510    JP NZ,TRYCTH
106B 3A3C12    TOGGP: LD A,(HCOPIF) ;.. toggle printer
106E 2F        CPL
106F 323C12    LD (HCOPIF),A
1072 C32610    JP MAINL        ;Return to mainloop
1075 FE04      TRYCTH: CP CTRL_D ;If ^D..
1077 CA8610    JP Z,MENU       ;.. Display menu
107A FE7F      CP DEL         ;Make DEL=BS
107C 2002      JR NZ,DATKE1
107E 3E08      LD A,BS
1080 CDF211    DATKE1: CALL TXDCHR ;Transmit code in Acc to line
1083 C32610    JP MAINL        ;Go back to mainloop

;Display Menu and buffer status
1086 CDFD11    MENU: CALL PRS
1089 0D0A      DEFB CR,LF
108B 49434F4D  DEFN 'ICOMM v1'
108C 4D207631  DEFN 'main menu'
1093 206D6169  DEFN 'main menu'
1094 6E206D65  DEFN 'main menu'
1095 6E75
109D 0D0A      DEFB CR,LF
109F 53706F6F  DEFN 'Spool buffer'
10A0 6C206275  DEFN 'Spool buffer'
10A1 66666572  DEFN 'Spool buffer'
10A2 20
10AC 00        DEFB 0
10AD 2A3E12    LD HL,(BDATA)
10B0 CDC811    CALL HL2HEX
10B3 CDFD11    CALL PRS
10B6 482D      DEFN 'H-'
10B8 00        DEFB 0
10B9 2A4012    LD HL,(BDATAP)
10BC CDC811    CALL HL2HEX
10BF CDFD11    CALL PRS
10C2 480D0A    DEFN 'H',CR,LF
10C5 5E502020  DEFN '^P - '
10C6 2D20
10CB 5072696E  DEFN 'Printer toggle.'
10CC 74657220  DEFN 'Printer toggle.'
10CD 746F6767  DEFN 'Printer toggle.'
10CE 6C652E
10DA 0D0A      DEFB CR,LF
10DC 5E442020  DEFN '^D - Display menu.'
10DD 2D204469  DEFN '^D - Display menu.'
10DE 73706C61  DEFN '^D - Display menu.'
10DF 79206D65  DEFN '^D - Display menu.'
10E0 6E752E
10EF 0D0A      DEFB CR,LF
10F1 45534320  DEFN 'ESC - Exit to Zymon.'
10F2 2D204578  DEFN 'ESC - Exit to Zymon.'
10F3 69742074  DEFN 'ESC - Exit to Zymon.'
10F4 6F205A79  DEFN 'ESC - Exit to Zymon.'
10F5 6D6F6E2E  DEFN 'ESC - Exit to Zymon.'
1105 0D0A0D0A  DEFB CR,LF,CR,LF,0
1106 00
110A C32610    JP MAINL        ;Go back to main loop

```



```

=====SUBROUTINES=====
;Print a character in Acc
;If A reg 0DH = CR then do carriage return
;If A reg 0AH = LF then do line feed.
;If A reg 08H = BS then do backspace.
;If A reg 7FH = DELETE then do backspace
;Else print A reg to cursor position and advance cursor.
110D F5 CONOUT: PUSH AF
110E C5      PUSH BC
110F D5      PUSH DE
1110 E5      PUSH HL
1111 4F      LD C,A      ;Save character to print
1112 2A4212  LD HL,(CURSOR) ;HL = cursor
1115 3A4412  LD A,(CURCAR) ;Character under cursor
1118 77      LD (HL),A    ;Put cursor character back
1119 79      LD A,C      ;Get character to display
111A CBBF    RES 7,A      ;Reset parity bit
111C FE0D    CP CR       ;Is it carriage return?
111E 2011    JR NZ,NCR    ;Branch if not CR
1120 21C0F5  CRET: LD HL,LINE24 ;Load bottom line
1123 7E      SAVCUR: LD A,(HL) ;Get cursor character
1124 324412  LD (CURCAR),A    ;Save it in curcar
1127 365F    LD (HL),A    ;Print the cursor
1129 224212  EXIT: LD (CURSOR),HL ;Save cursor position
112C E1      POP HL
112D D1      POP DE
112E C1      POP BC
112F F1      POP AF
1130 C9      RET          ;Exit done
1131 FE0A    NCR: CP LF      ;Is it line feed?
1133 2018    JR NZ,NLF      ;Jump if not line feed
1135 1100F0  LFEED: LD DE,LINE1 ;Point to screen top
1138 2140F0  LD HL,LINE1+COLS ;Point to line 2 start
113B 01C005  LD BC,(LINES-1)*COLS ;Number to move
113E EDB0    LDIR          ;Scroll up
1140 21C0F5  LD HL,LINE24 ;Load bottom line
1143 0640    LD B,COLS      ;Load line length
1145 3E20    LD A,SPACE    ;Space code
1147 77      CL24: LD (HL),A ;Blank first
1148 23      INC HL        ;Advance pointer
1149 10FC    DJNZ CL24     ;Blank bottom line
114B 18D3    JR CRET
114D FE08    NLF: CP BS      ;Is it backspace?
114F 2006    JR NZ,NBS      ;Branch if not
1151 3620    DELIT: LD (HL),SPACE ;Blot out character
1153 2B      DEC HL        ;Backspace pointer
1154 C32311  JP SAVCUR      ;Branch to exit
1157 FE7F    NBS: CP DEL     ;Is it delete?
1159 28F6    JR Z,DELIT    ;Do as backspace if delete
115B 77      LD (HL),A      ;Print code in A
115C 23      INC HL        ;Advance the cursor
115D 1100F6  LD DE,LINE24+COLS ;Screen end
1160 CD0A12  CALL COMPARE ;Does cursor = end?
1163 CA3511  JP Z,LFEED     ;Scroll if screen end
1166 C32311  JP SAVCUR      ;Exit if not screen end

;Spool data in Acc to memory buffer
1169 F5      SPOOLD: PUSH AF
116A D5      PUSH DE
116B E5      PUSH HL
116C 5F      LD E,A      ;Save char
116D 3A3D12  LD A,(SPOOLF) ;Get spool flag
1170 FE00    CP TRUE
1172 203B    JR NZ,SPOOL1 ;Skip spool if buffer flag false
1174 7B      LD A,E      ;Get back char
1175 2A4012  LD HL,(BDATAP) ;Buffer pointer
1178 77      LD (HL),A    ;Store data
1179 23      INC HL        ;Next pos
117A 224012  LD (BDATAP),HL ;
117D 1100E0  LD DE,0E000H ;Limit of buffer
1180 CD0A12  CALL COMPARE ;At limit yet?
1183 202A    JR NZ,SPOOL1 ;Continue if spool space ok
1185 CDFD11  CALL PRS
1188 0D0A0D0A DEFB CR,LF,CR,LF
118C 53706F6F DEFM 'Spool buffer full - Closed.'
        6C206275
        66666572
        2066756C
        6C202D20
        436C6F73
        65642E
11A7 0D0A00  DEFB CR,LF,0
11AA 3EFF    LD A,FALSE ;Buffer full so switch off spooling
11AC 323D12  LD (SPOOLF),A
11AF E1      SPOOL1: POP HL
11B0 D1      POP DE
11B1 F1      POP AF
11B2 C9      RET

```

```

;=====
;Acc to Hardcopy if hardcopy is turned on.
11B3 C5 HCOPI: PUSH BC
11B4 4F LD C,A ;Save code
11B5 3A3C12 LD A,(HCOPIF) ;Test toggle status
11B8 FE00 CP TRUE
11BA 2009 JR NZ,HCOPIE ;Exit if toggle false
11BC DB06 HCOPI1: IN A,(PSTAT) ;Get printer status
11BE E680 AND 80H
11C0 28FA JR Z,HCOPI1 ;Looping for TBMT
11C2 79 LD A,C ;TBMT so get code
11C3 D307 OUT (PDATA),A ;Print it
11C5 79 HCOPIE: LD A,C
11C6 C1 POP BC
11C7 C9 RET

;=====
;Print hex of HL
11C8 7C HL2HEX: LD A,H
11C9 CDD111 CALL A2HEX
11CC 7D LD A,L
11CD CDD111 CALL A2HEX
11D0 C9 RET

;=====
;Print hex of ACC
11D1 F5 A2HEX: PUSH AF
11D2 1F RRA
11D3 1F RRA
11D4 1F RRA
11D5 1F RRA
11D6 CDDA11 CALL A2L
11D9 F1 POP AF
11DA E60F A2L: AND 0FH
11DC FE0A CP 10
11DE DAE311 JP C,A2U
11E1 C607 ADD A,7
11E3 C630 A2U: ADD A,'0'
11E5 CD0D11 CALL CONOUT
11E8 C9 RET

;=====
;Get data from the modem
11E9 DB20 GETMOD: IN A,(USTAT) ;Get status, looking for DAV
11EB E640 AND 40H ;Mask for DAV
11ED 28FA JR Z,GETMOD ;Loop if no DAV yet
11EF DB21 IN A,(UDATA) ;Get data to Acc
11F1 C9 RET ;Pass it back

;=====
;Pass Acc to modem for transmission
11F2 F5 TXDCHR: PUSH AF ;Save data
11F3 DB20 TXDC01: IN A,(USTAT) ;Get modem status byte
11F5 E680 AND 80H
11F7 28FA JR Z,TXDC01 ;Wait for TBMT
11F9 F1 POP AF
11FA D321 OUT (UDATA),A ;Send data
11FC C9 RET ;Finished

;=====
;Print string inline, stop at 00
11FD E3 PRS: EX (SP),HL ;Get first character position
11FE 7E PRS1: LD A,(HL) ;Get first/next character
11FF B7 OR A ;Set flags on char
1200 2806 JR Z,PRS2 ;If char=0 exit
1202 CD0D11 CALL CONOUT ;Else print character
1205 23 INC HL ;Point to next character
1206 18F6 JR PRS1 ;Loop back for next
1208 E3 PRS2: EX (SP),HL ;Get return address to stack
1209 C9 RET ;Go back

;=====
120A B7 COMPAR: OR A ;Clear carry
120B ED52 SBC HL,DE ;Compare HL:DE set flags
120D 19 ADD HL,DE ;Restore HL
120E C9 RET ;Return flags on compare

;=====
;Return key status in Acc. Non zero if key found
120F 3A4512 KEYST: LD A,(KEYCDE)
1212 B7 OR A
1213 200E JR NZ,OLDKEY
1215 DB40 NEWKEY: IN A,(KDATA)
1217 C680 ADD A,80H
1219 324512 LD (KEYCDE),A
121C 3805 JR C,OLDKEY
121E AF XOR A
121F 324512 LD (KEYCDE),A
1222 C9 RET
1223 3EFF OLDKEY: LD A,0FFH
1225 C9 RET

```

```

;*****
;Return key in Acc
1226 CD0F12 KEY1: CALL KEYST
1229 3A4512 KEYIN: LD A,(KEYCDE)
122C B7 OR A
122D 28F7 JR Z,KEY1
122F 4F LD C,A
1230 DB40 STB: IN A,(KDATA)
1232 C680 ADD A,80H
1234 30FA JR C,STB
1236 AF XOR A
1237 324512 LD (KEYCDE),A
123A 79 LD A,C
123B C9 RET
;*****

```

```

;*****
;IComm workspace
123C 00 HCOPIF DEFB 0 ;Print control
123D 00 SPOOLF DEFB 0 ;Spooler control
123E 0020 BDATA DEFW BUFFER ;Spool data
1240 0020 BDATA DEFW BUFFER ;Spooled data pointer
1242 C0F5 CURSOR DEFW LINE24 ;Cursor address
1244 20 CURCAR DEFB 20H ;Character under cursor
1245 00 KEYCDE DEFB 0 ;Key code
1246 00 STKSPC DEFB 100 ;Stack space
12AA 0000 STACK DEFW 0 ;Stack pointer at start
2000 BUFFER EQU $+1000H.AND.0F000H ;Spool buffer (Next 4k boundary)
;*****

```

```

;*****
;ICOMM Appendix A
;COM-1 card details.
;I recommended that the COM-1 be set for port 20H.
;COM-1 to Modem interface connections.
;Only four wires are required between COM-1 and the
;Modem.
; COM-1 card MODEM
; 80 serial out ----- Pin 2 TXD
; S1 serial in ----- Pin 3 RXD
; CTS ----- Pin 5 CTS
; 0v ----- Pin 7 Signal ground
;On the COM-1 card, connect CTS to the BUSY signal
;that is Anded with TBMT.
;*****

```

#### ;COM-1 port maps

```

;Read Port 20H, USTAT = Uart status byte
;Bit Meaning
; 7 TBMT 1 if Transmitter buffer empty
; 6 DAV 1 if Data available
; 5 EOC 1 if End of character
; 4
; 3
; 2 PE 1 if Parity error
; 1 FE 1 if Framing error
; 0 OR 1 if Overrun

;Write Port 20H,
;UCONF = Uart configuration byte. Pattern to
;Bit Meaning init Interak
; 7 0
; 6 0
; 5 NP 1 for No parity. 1
; 4 EPS 1 for Even parity. 0
; 3 NB2 NB2,NB1 00 = 5 bits, 01 = 6 bits. 1
; 2 NB1 NB2,NB1 10 = 7 bits, 11 = 8 bits. 1
; 1 0
; 0 TSB 0 = 1 stop bit. 1 = 2 stop bits. 0

```

```

;Read Port 21H, UDATA = Uart data.
;8 bits of data are read by this port.

```

```

;Write Port 21H, UDATA = Uart data
;8 bits of data are written to this port.

```

```

;Read Port 22H, MODIN = Modem input lines

```

```

;Bit Meaning
; 7 CTS/RTS
; 6 DSR/DTR
; 5 RXD/TXD
; 4 MR CLK
; 3 MT CLK
; 2 DRS/STF
; 1 RI
; 0 DCD

```

```

;Write Port 22H, MODOUT= Modem output lines

```

```

;Bit Meaning
; 7 RTS/CTS
; 6 DTR/DSR
; 5
; 4
; 3
; 2 STF/DRS
; 1 RI
; 0 DCD

```

```

;Write Port 23H, UBAUD= Uart Baud rate. Pattern to
;Bit Meaning init Interak

```

```

; 7 TXC8\ 0
; 6 TXC4 Transmitted data baud rate select 1
; 5 TXC2 0 - F, 50 to 19200 baud 0
; 4 TXC1/ 1
; 3 RXC8\ 0
; 2 RXC4 Received data baud rate select 1
; 1 RXC2 0 - F, 50 to 19200 baud 0
; 0 RXC1/ 1

```

THE END

# FORMAT.COM

## CHANGES TO FORMAT.COM (VERSION 2.1 FOR 5.25" DISKS) TO MAKE VERSION 2.2

These alterations were discovered by Mr. K. Daley (to whom our grateful thanks are extended) to make Wolf Schroeder's formatting program comply with the proposed standard.

Make the following alterations using DDT (on a copy of FORMAT.COM, unless you are very confident!) as follows. No change in performance will result, except that some non-Interak users, with less advanced disk controllers than the Interak FDC-1, will find it easier to read and write to our formatted diskettes.

The changes below include changing the on-screen version number, so that you as a user will have a clear indication which version of "FORMAT.COM" you are using.

DDT FORMAT.COM<cr>

NEXT PC  
0900 0100

Use the "S" command to make the following changes

Address	Existing	Change-to
0126	31	32
03DF	68	94
03E1	5C	50
03E5	20	50
03EF	0C	08
040B	20	18

CTRL-C (to return to CP/M)

SAVE 8 FORMAT.COM<cr>

David Parkins 09/10/1986.

[ED - This is the format specification change that the modification represents. Personally I used :-

This to prevent confusion on my machine. Also, before you do the above, check that you have 2.1, as newer owners may already have 2.2.]

SAVE 8 FORMAT2.COM

DOCUMENT REF: DFMT2 861009

## REVISED INTERAK DISK FORMAT SPECIFICATION CALCULATIONS

	Existing (Wolf Schroeder)
PREAMBLE	32 4E 12 00 3 C2
INDEX MARK	1 FC 32 4E GAP 1A
SECTOR	12 00 GAP 1B, 3B 3 A1
ID MARK	1 FE
TRACK NUMBER	1 --
SIDE NUMBER	1 --
SECTOR NUMBER	1 --
LENGTH CODE	1 02
ID CRC	2 CRC 22 4E GAP 2A 12 00 GAP 2B 3 A1
ADDRESS MARK	1 FB
DATA	512 E5
DATA CRC	2 CRC 32 4E GAP 3A

### CALCULATIONS

GAP 1 = 44  
GAP 2 = 34  
GAP 3 = 44  
GAP 4 = ??

PREAMBLE = 48+  
1A+ = 32+

80  
SECTOR: = 528+  
1B+ = 12+  
2A+ = 22+  
2B+ = 12+  
3A+ = 32+

606  
TRACK:  
PREAMBLE + 80+  
(10 x SECT) 6060+  
GAP 4 15-!!!!

6125

6125 is worst case for disk running 2% fast: GAP 4 of -15 is unacceptable.

	WD 2797 Data (Table 10)
PREAMBLE	32 4E 12 00 3 C2
INDEX MARK	1 FC 32 4E GAP 1A
SECTOR	8 00 GAP 1B, 3B 3 A1
ID MARK	1 FE
TRACK NUMBER	1 --
SIDE NUMBER	1 --
SECTOR NUMBER	1 --
LENGTH CODE	1 02
ID CRC	2 CRC 22 4E GAP 2A 12 00 GAP 2B 3 A1
ADDRESS MARK	1 FB
DATA	512 E5
DATA CRC	2 CRC 24 4E GAP 3A

### CALCULATIONS

GAP 1 = 44  
GAP 2 = 34  
GAP 3 = 44  
GAP 4 = 16

PREAMBLE = 96+  
1A+ = 32+

128  
SECTOR: = 528+  
1B+ = 8+  
2A+ = 22+  
2B+ = 12+  
3A+ = 24+

594  
TRACK:  
PREAMBLE + 128+  
(10 x SECT) 5940+  
GAP 4 16+

6084

6084 allows disk speed error of 2.65%: acceptable.



# IMPORTANT INFORMATION - ISBUS TRACKING ERROR

From :-  
Greenbank Electronics,  
460 New Chester Road,  
Rock Ferry,  
Birkenhead,  
Merseyside,  
L42 2AE.

Dear Editor,

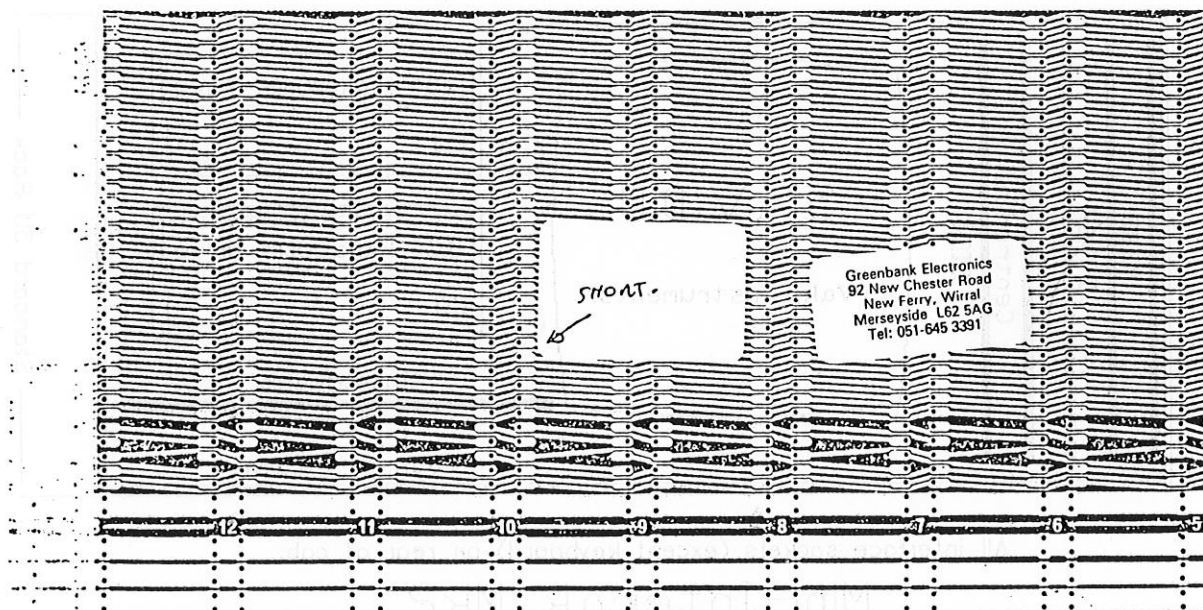
One of our users (Max Cottrell, thanks Max!) has recently reported a tiny short circuit on the track of an ISBUS board supplied to him in June this year. On checking our own stock of boards we found they were mostly OK, but a couple of boards did bear a similar fault. Murphy's law being what it is, there is a chance other users have been affected, so we are writing to you to ask all users to check their backboards just to be on the safe side.

The fault, if present, is in the nature of a "time bomb" because it will not affect the present working of any Interak, since it is a short to the "B" side connectors, which are not used at the moment; but of course if a short is present it is better that it is cleared sooner rather than later.

If there is space in the newsletter perhaps you can print a copy of the enclosed picture identifying the suspect area, but if not, ask the users to check the track which goes to B25 on edge connector number 10 is not shorting to connector pin A25 where the track passes between pins A24 and A25.

Yours sincerely  
D.M.Parkins.

ISBUS BACKBOARD - indicating suspect area



TAECOMM NEWS FILE  
By Tom Evans, SYSOP & SEC

Taecomm birth date: 14/10/85  
\*\* UPDATE 22/09/86 \*\*

### "New Mini-Interak"

Hi all, and everyone, have now got the mark 2 "portable" Interak into operation, this version, unlike mark 1 which had a VDU2K card, has an Intelgraph graphics terminal board built into the rack, giving not only limited graphics, but the magic 80 column display. Now I can use Calcstar, plus other software not permitted with the VDU2K's 64 column screen. The Intelgraph board was built about 2-3 years ago in an attempt to add 80 columns to my original Interak (the big beast), but proved a bit difficult at the time to install with some major brands of software, so stood idle up until now. I have altered the operating Rom in Intelgraph (with the aid of Frank Kups, Intelgraph designer) three times in order to improve its code compatibility, and is now "acceptable" to use with my present software. Going back to the Interak, she has twin 3.5" Panasonic drives giving a total of 1.6Mb storage, twin RS232C ports (one tied up to the Intelgraph), and a Centronics port for printer. The VDU is a VAKO Instruments 5" green phosphor monitor (makes you squint after a couple of hours), and a Farnell switch mode power supply. The keyboard is a 77 key Keytronic, ex-equipment from Lou Bishop, as is the Farnell power supply.

### "Centronics card from Greenbank"

A new Centronics interface card kit is about to be launched by Greenbank for the Interak, for more details, and delivery contact Dave Parkins 051-645-3391.

### "Drive select problems"

Something that has been driving me mad of late (possibly you as well), is the apparent stoppages to the drives on the board, and some select errors that have cropped up occasionally, now cured (I think), I received a ready built prototype disc controller for the machine, and the method of manufacture needed some ic sockets to be soldered top and well as on the bottom of the card, it appears after scrutiny that a total of eight legs missed this needed attention, and was giving off the select errors, finally failing, and crashing the board this weekend (20th Sept), I happened to be away this weekend, and the board was looking after itself, alas she fell fatally ill through lack of solder and died (sob). Now after some deft and magic surgery with a soldering iron and magnifying glass by Doc Tom, she burst into life, and it happily humming along keeping my knees warm as I type, ahh bliss!

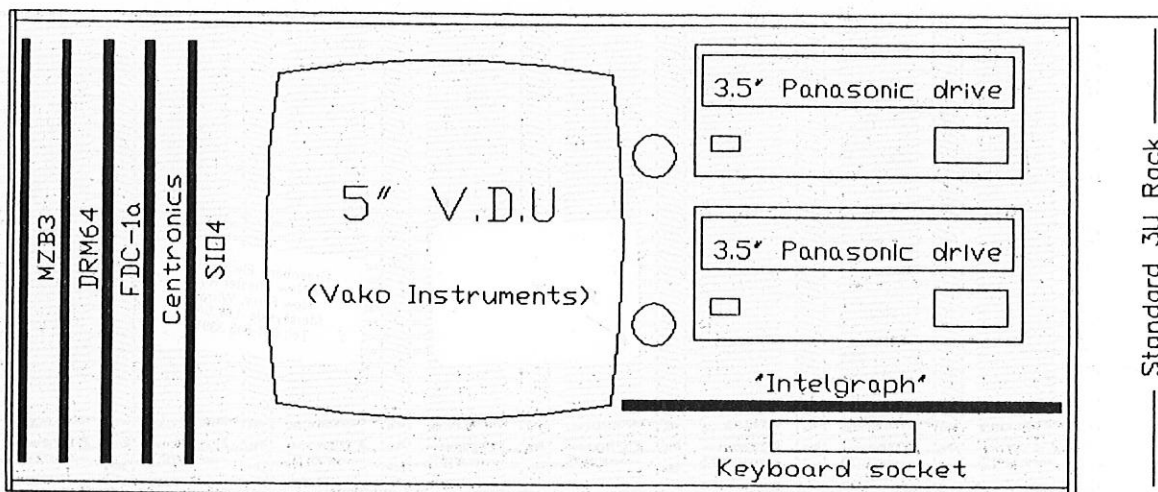
### "IBM Clone is singing"

My foray into the world of IBM Clones has given me an XT type model with 640k on board memory, and 10Mb hard disk, this is working quite well, and am suprised how good it is, after all the gossip I had listened to regarding how crappy the whole system was. It does appear slightly SLOWER than the Interak when operating the same stable word processor, but has some impressive software available making it very acceptable. My main requirement for the machine is in CAD and AV designs for my work, so will report on it more in the next update, but if anyone is thinking of getting one, you could do no better if you contacted Lou Bishop (Uxbridge 55399) for a quote and a play on the machine.

See yas ..... Tom.

PRINTED ON LOGITEK FT5001 VIA 80ft LINK BETWEEN GRAPHIC STATION AND INTERAK

This is a working portable version of the Interak Mk1. Centronics Interface is optional (printer). One UART of the SIO4 (ports 00/01) services the Intelgraph. (Second UART for printer/modem?)



All interface sockets (except keyboard) on rear of cab.

## Mini-Interak Mk2

(original Mini had VDU-2k, and LKP-1 Instead of Intelgraph)

NOT TO SCALE

01/10/86.	Taecomm-Interak
	Cad program test
	1 of 1

# 16 CHANNEL x 16 BIT +-CV GENERATOR FOR ANALOGUE MUSIC SYNTHESISER CONTROL

By Alan Payne.

Here is a simple project which can produce control or signal voltages for connection to an analogue synthesiser.

## The Circuit.

An Exor gate decoder detects prefix 'C' addresses from the high 4 bits of address bus 0 thro' 7, and with the first "And" gate and the IORQ and Write data strobe produces a strobe for all prefix 'C' port addresses (point A).

This signal simultaneously activates the sample and hold amplifier aperture timing monostable ('221), port postfix latch ('273 on address bus lines 0 thro' 3), and data latches for the D.A.C. ('273s on Data lines 0 thro' 7 and address lines 8 thro' 15).

The port postfix is decoded by a 4 to 16 line decoder ('154) and the individual Sample and hold enables are activated by strobing pin 17 of the decoder, which saves on decoders and monostables (good eh?)

Logic and +-12v Supplies are from the Interak, and the +-15v Supply comes from an onboard +5 to +-15v epoxy encapsulated D.C. to D.C. converter. (Check the Supply requirements of your D.A.C.)

The Logic is all standard L.S., the D.A.C. used should be the best affordable (i.e. Burr Brown PCM 50kg) and an internal output amplifier can be feedback controlled with a multiturn pot or precision resistor. (O/P filters yet to be investigated)

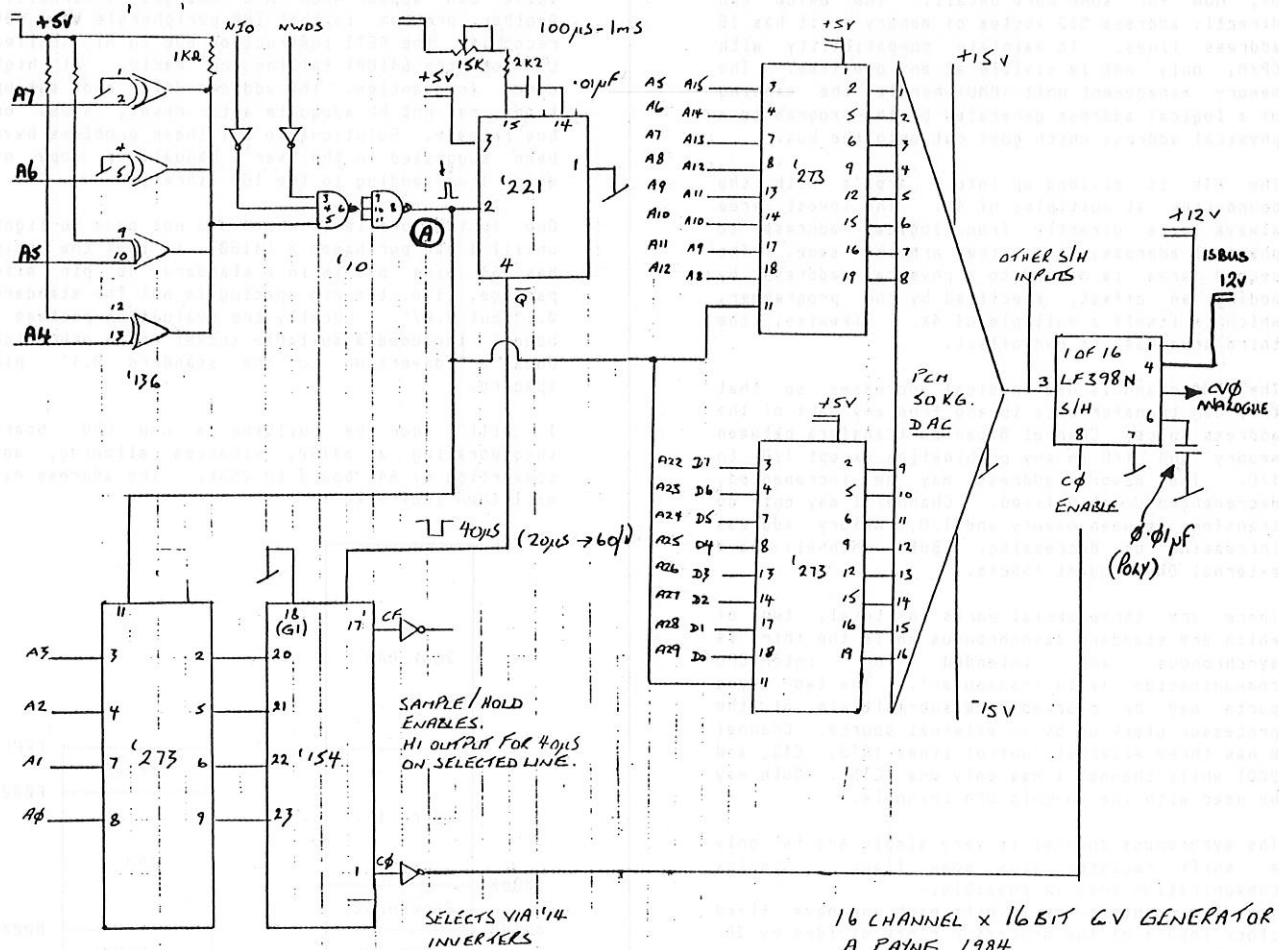
Likewise, the best S/H amplifiers should be used, the LF398N (D.I.L.) has the fast and accurate capture, Low drift (with sensible sized capacitors) and a high input resistance/impedance, which is important, since any load on the D.A.C. can affect the accuracy of its output. Use Polystyrene, Polypropylene or P.T.F.E dielectric capacitors, the upright rectangular types are most convenient.

The monostable timing must be chosen to satisfy the conflicting requirements of update time and accuracy, a value in the range 10 micro/s to 100 micro/s will be adequate for most purposes, software must take these times into account. Note that 280 instruction OUT (C),r requires the "C" register to hold the port address, and the "B" and "r" register ("r" not being "C" or "B") to hold data.

Further information send S.A.E. to :-

Alan Payne,  
JO-AL,  
22 Buckhurst Way,  
East Grinstead,  
West Sussex,  
RH19 2AF.

(P.S. Any info on suppliers of analogue modules?)





# HITACHI HD64180 CPU By Simon Waller

Flat 2,  
Maritime Court,  
58 Foundation Street,  
Ipswitch,  
IP4 1BN.

"In the beginning, there was Intel and Intel created the 4004 CPU, and Intel saw that it was good. And the 4004 begat the 8008, and the 8008 begat the 8080, and the 8080 begat the Z80."

This distinguished family tree has recently been extended another generation by the Hitachi HD64180 CPU. Compatibility has been maintained as far as possible for the obvious reasons: all that lovely software written for the 8080 and the Z80, mainly under CP/M.

But this chip is not merely a Z80 clone. It combines onto one chip most of the essential features necessary for a microprocessor system. Hitachi have managed to squeeze onto the chip a Z80 processor (plus some extra instructions), a memory management unit, two 16 bit timers, two DMA channels, two asynchronous serial channels, one synchronous serial channel plus some nice extras.

Added to this, the 64180 executes some instructions using fewer cycles than the Z80 and the standard version can run at speeds up to 4MHz. It is fabricated in CMOS so that it typically consumes 10ma compared to 90ma typical for a Z80A. It has an on-chip clock generator that only needs an external crystal (at double the operating frequency) or it can run of an external clock signal.

Ok, now for some more detail. The 64180 can directly address 512 kbytes of memory so it has 18 address lines. To maintain compatibility with CP/M, only 64k is visible at any one time. The memory management unit (MMU) handles the mapping of a logical address generated by the program to a physical address which goes out onto the bus.

The 64k is divided up into 3 area's with the boundaries at multiples of 4k. The lowest area always maps directly from logical address to physical address, i.e. they are the same. The second area is mapped to a physical address by adding an offset, specified by the programmer, which is itself a multiple of 4k. Likewise, the third area has its own offset.

The DMA channels use physical addresses so that they can transfer data to and from any part of the address space. Channel 0 can do transfers between memory and I/O in any combination except I/O to I/O. The memory address may be incremented, decremented or stay fixed. Channel 1 may only do transfers between memory and I/O, memory address increasing or decreasing. Both channels have external DMA request inputs.

There are three serial ports in total, two of which are standard asynchronous while the third is synchronous and intended for inter-CPU communication (a la transputer). The two async ports may be clocked by a sub-multiple of the processor clock or by an external source. Channel 0 has three external control lines (RTS, CTS, and DCD) while channel 1 has only one (CTS). Both may be used with the on-chip DMA channels.

The synchronous channel is very simple and is only a shift register plus some flags. Simplex communication only is possible. The two counters are 16 bits each and have fixed clock inputs of the processor clock divided by 20. When the counters have reached 0, interrupts may

be generated and the counters are reloaded with preset values.

All these extra functions have to be programmed somehow. A block of 64 ports have been reserved for them and these ports may be positioned to start at address 00, 40H, 80H, or C0H to keep flexibility. Each function has an internal interrupt line and there are four external ones: NMI, INT0 (both the same as the Z80), INT1 and INT2.

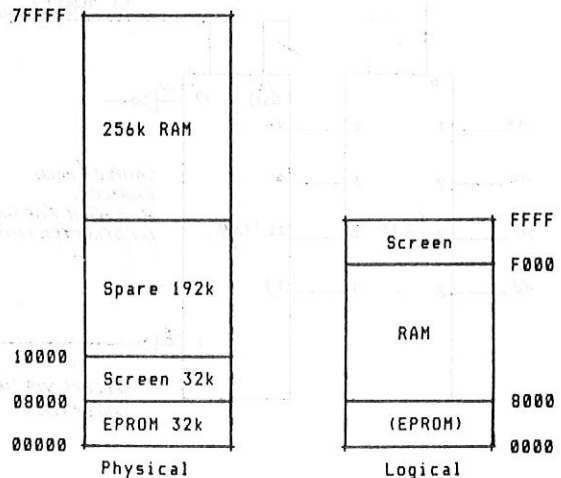
The timing on the bus is the same as the Z80 so it is almost a plug-in replacement. The processor clock is output from the on-chip clock generator and there is also a clock output E suitable for the 68xx chip family. Did I mention that wait states can be programmed into memory or I/O accesses, that the frequency of the refresh cycle can be programmed, that illegal op-codes are treated as a software interrupt, and that the I/O address space is increased to 64k? (The advantage of the latter is debatable).

Some new instructions have been added. There is a sleep instruction, similar to halt but the power consumption is reduced, an 8x8 multiply, I/O using any register and any port, block I/O output where the port address is incremented/decremented as well as the memory address, and a test instruction tht is a non-destructive AND of the accumulator with an I/O port, a register, immediate data or memory at (HL).

The 64180 is completely software compatible with the Z80 but there are a few minor hardware problems, most of which occur at clock speeds above 4MHz. Some pins have two functions which has to be resolved by the programmer. An example is the timer output which may be used instead as address line 18. When used as the timer output, a spike can appear when A18 changes internally. Another problem is that Z80 peripherals may not recognise the RETI instruction due to M1 (called LIR on the 64180) falling too early. At high clock frequencies, the address delay and set-up times may not be adequate after reset, sleep or bus release. Solutions to all these problems have been suggested in the User's Manual, a copy of which I am sending to the IUG library.

One further problem, which did not come to light until I had purchased a 64180, is that the chip has 64 pins but is in a standard 40 pin size package, i.e. the pin spacing is not the standard 0.1" but 0.07". Luckily the evaluation package I bought included a suitable socket and a pcb which does a conversion to the standard 0.1" pin spacing.

I will soon be building a new CPU board incorporating a 64180, finances allowing, and converting my 64k board to 256k. The address map will then look like :-





The EPROM in the logical address map may actually be the EPROM in full or in part or an image in RAM. When running CP/M, none of the EPROM will be visible except when a call to the BIOS is made. The bottom boundary will be moved up in memory to reveal the EPROM which will contain most of the BIOS routines. Before returning to CP/M, the boundary is moved back again to hide the EPROM.

The screen can be mapped out in a similar manner. When running a monitor similar to ZYMON, the screen can appear at F000H to maintain compatibility.

The I/O ports used to control the 64180 features can appear at 80H to BFH as this area seems relatively free at the moment.

The main advantage of the 64180 is that it maintains software and hardware compatibility with existing Z80 systems while offering extra features on the same chip. This trend is likely to continue in the future due to the high cost of developing completely new systems and writing new software. If this article has aroused your curiosity, then I suggest you get hold of the HD64180 User's Manual I mentioned earlier, which is where I got all this information.

Simon

[ED- Thank you Simon for a great article. I have wondered for a long time now what would finally replace the Z80 and this seems a possible candidate. I would dearly like to hear what David Parkins of Greenbank thinks of the 64180 and so I will send the book to him, hopefully he will write an article based on his long experience at designing cards etc. I will ask him to pass the book to the library when he has formed an opinion of the chip.]

Notes on a session with TAECOMM.

By Bob Eldridge

This is an edited version of the 23 pages of text obtained from the TAECOMM BULLETIN BOARD. As I received so much from the board I have cut it down to try to give you as much information as possible in the space available. Log on and see it for yourself. In this text my notes, added during editing, are enclosed in [].

YOU ARE IN CONTACT WITH TAECOMM

```
*****
* THIS "FREE" BULLETIN BOARD *
* IS SPONSORED AND RUN BY: *
*****
* TOM EVANS *
* INDUSTRIAL & COMMERCIAL PHOTOGRAPHY *
* COMPUTER AIDED A.V. DESIGN *
* 01-573 8822 *
*****
```

CONTROL-X TO STOP, S TO PAUSE,  
CONTROL-Q TO RESUME TRANSMISSION

```
TTTT AAAA EEEE CCCC OOOO MM MM MM MM
T A A E C C O O M M M M M M
T AAAA EEE C C O O M M M M M M
T A A E C C O O M M M M M M
T A A EEEE CCCC OOOO M M M M M M
```

```
III NN N TTTT EEEE RRR AAAA K K
I N N N T E R R A A K K
I N N N T EEE RRR AAAA K K
I N N N T E R R A A K K
III N NN T EEEE R R A K K K
```

INTERAKERS,  
NASCOMEERS,  
GEMINITES,  
CONSTRUCTORS  
AND  
ALL.....

WELCOME TO TAECOMM

\*\*\*\* MEMBER OF THE BBOA \*\*\*\*  
OCTOPUS R.A.S VERSION 1.9IE  
INTERAK 1.280.CP/M 2.2

```
*****
<O>NLINE *****
<C>OMPUTER * A SPECIAL WELCOME *
<T>ERMINAL * IS EXTENDED TO ALL *
<O>PERATED * INTERAK USERS *
<P>UBLIC *****
<U>SER SYSTEM WRITTEN BY
<S>YSTEM PETER EVANS (OCTOPUS)
*****
```

```
SYSTEM OPERATOR > :TOM EVANS
FAITHFULL TEMP > :BARB EVANS
SYSTEM HOURS > :NORMAL RUNNING
> :7PM TO 7AM
> :SUNDAY RUNNING
> :NOON TO 7AM
```

IF YOU HAVE FORGOTTEN YOUR PASSWORD, LEAVE US A MESSAGE, USING THE NAME <PASSWORD LOST>. DO NOT ENTER ANY PASSWORD IF YOU USE THIS DUMMY NAME, AS OTHER FORGETFUL USERS WILL THEN BE DENIED ACCESS.

IF THIS IS YOUR FIRST CALL - PLEASE TAKE CARE TO ENTER YOUR LOG-ON DATA CORRECTLY - WITHOUT UNWANTED SPACES OR NON-PRINTING CHARACTERS,

>>>> AND "PLEASE" USE YOUR "REAL" NAME >>>>

PLEASE LOG-ON TO THIS SYSTEM WITH THE FOLLOWING INFORMATION,

```
FIRST NAME > :BOB
LAST NAME > :ELDRIDGE
<SEARCHING USER-LOG>
CALLING FROM > :LONDON
```

INPUT A 1 TO 24 CHARACTER PASSWORD  
TERMINATING WITH <CR>, FOR YOUR FUTURE USE WITH  
THIS BOARD. IF NO PASSWORD IS ENTERED IT WILL BE  
ASSUMED THAT YOU DO NOT WISH TO REMAIN ON THE  
USER LOG, AND YOUR NAME WILL BE REMOVED AFTER LOG-  
OFF

PASSWORD > i\*\*\*

FIRST NAME > iBOB

LAST NAME > iELDRIDGE

CALLING FROM > iLONDON

PASSWORD > i\*\*\*

\*\*\* IS THIS CORRECT (Y/N)? \*\*\* > iY

CAN YOU PRINT LOWER CASE? (Y/N) > iY

DO YOU NEED LINE FEEDS? (Y/N) > iY

TERMINAL WIDTH? (40-132 CHARS) > i64

HOW MANY NULLS? (0-50) > i0

\*\*\* TAECOMM R.A.D.S (Hayes) \*\*\*

Welcomes > iBOB ELDRIDGE

Calling from > iLONDON

Your system user number is > i00224

Control-X to Stop, S to Pause,  
Control-Q to Resume Transmission

#### TAECOMM Remote Access System

\*\*\*\*\*  
Data Format 8 bit word - Two stop bits - No Parity  
\*\*\*\*\*

RECENT U.K. DATA PROTECTION LEGISLATION ENTAILS  
THAT USERS OF THIS SYSTEM JOIN OUR FREE USERS  
CLUB. MEMBERSHIP OF THIS CLUB IS ASSUMED BY  
USING THIS SYSTEM. IF THIS IS YOUR FIRST CALL,  
AND YOU DO NOT WISH TO BECOME A MEMBER THEN  
PLEASE DO NO FURTHER AND HANG UP NOW.

[ED - I have gathered together some of the menus  
that are available to access the boards  
information. It all starts with a main menu and  
then sub menus as you go deeper. I did not get  
them all.]

#### \*\*\* Bulletins \*\*\*

\*\*\*\*\*  
<B>ulletin No1  
<E>xit to Main Menu  
<G>oodbye to terminate

#### TaeComm System Download Area

\*\*\*\*\*  
The following protocols are available  
<A> X-on/X-off buffer control codes off  
<B> X-on/X-off buffer control codes on  
(ASCII Files ONLY)  
<C> X-Modem Protocol file transfer  
(All File Types)

#### \*\*\* Main Menu \*\*\*

\*\*\*\*\*  
<B>ulletins  
<C>hat with SYSOP  
<D>ownload Software  
<F>ormat System Output  
<I>nformation  
<L>ocal Features  
<M>essaging section  
<P>assword alteration  
<R>egistration (raise access level)  
<S>upervisory board  
<U>tilities  
<X>'change User  
<G>oodbye to terminate

#### \*\*\* Information \*\*\*

\*\*\*\*\*  
<A>ssociation of F.P.A.S standards  
<D>isplay system user-log  
<H>ardware information  
<S>oftware information  
<U>se (how to use system)  
<E>xit to Main Menu  
<G>oodbye to terminate

#### \*\*\* Messaging \*\*\*

\*\*\*\*\*  
<M>ail (post private E-Mail)  
<F>lagged (marked) messages  
<P>ost public messages  
<R>ead public messages  
<S>can public messages  
<E>xit to Main Menu  
<G>oodbye to terminate

#### \*\*\* TaeComm Flagged Message Area \*\*\*

\*\*\*\*\*  
<R>ead messages to You  
<V>iew Messages from You  
<E>xit this section

#### \*\*\* System User Registration \*\*\*

\*\*\*\*\*  
The following information is required  
for user Registration.  
1, Your current address and postcode  
2, A daytime (S.T.D) telephone number  
3, An optional password, for future use  
Compile this information, and enter as  
the following SYSTEM OPERATOR MESSAGE.

A System Access Level  
of > 8 is required  
to Access -<S>- Board

#### \*\*\* Utilities \*\*\*

\*\*\*\*\*  
<F>ormat system O/P  
<X>pert (toggle help level)  
<O>ther board systems  
<T>erminal Test Sequence  
<E>xit to Main Menu  
<G>oodbye to terminate

## TAECONM SYSTEM INFORMATION

INTERAK version of OCTOPUS R.A.S 1.9

Written by PETER EVANS

Grafted to Interak by TOM EVANS

These files explain how TAECONM handles the following features: If you have never used the TAECONM BB before you should print or save to disc a copy of these instructions. They will help answer some of the more common questions asked about how to use TAECONM.

## MESSAGE ENTRY METHODS

\*\*\*\*\*

TAECONM BB supports two forms of message entry. These are the line mode, and unprompted block mode.

The line mode is intended for manually typed in messages (the most common type). It prompts for each line with a line number and the count of characters left in the message buffer, where [LL] is the line number, and <NNNN> is the remaining (denary) buffer space.

The unprompted block mode is for terminal programs which do not support prompted upload. In this mode characters may be sent in a continuous stream until either two <CR>'s in a row (equivalent of a null input line) or the buffer limit of 2048 characters is reached.

The most usual problem area in block message input to TAECONM is when you wish to include a blank line in your text. You MUST put at least one space in the line or it will be interpreted as the end of the message being entered.

When you have entered your message you will be given a set of options as follows:

<L>ist, <E>dit, <S>ave, or <A>bort?

<L>ist displays your entered text without word wrap and with each line numbered. The numbers are used for editing if you wish. Remember that TAECONM will word wrap your message when it finally displays it so the lines may not come out exactly as you expect them.

<E>dit will ask you for a line number. Enter the number of the line you wish to change (as shown by <L>ist) and the current line will be displayed. You then re-type just this line as you want it to be, up to the length of the incorrect line.

<S>ave will save your message to the system's disc message base and exit back to the menu.

<A>bort will give up on entering this message. All text will be thrown away and you will be returned to the menu as if you had never used the enter message command.

## DOWNLOAD FACILITIES

\*\*\*\*\*

TAECONM supports three protocols for program downloading:

## 1. ASCII with Buffer Control Codes.

To use this mode your terminal program must recognize a Ctrl-R as a code for opening its buffer. That is, when your terminal program receives the Ctrl-R it should start spooling all incoming data to a memory buffer.

Upon receipt of a Ctrl-T it should stop spooling to the buffer. You then should have some method of dumping your memory buffer to a disc or tape file. Any non-ASCII software which appears in a download section cannot be transmitted by this protocol.

## 2. ASCII only, no control codes.

In this mode TAECONM just sends the file data only. You must capture it as best you can. A non-ASCII file cannot be transmitted by this protocol.

## 3. X-MODEM PROTOCOLS.

TAECONM B.B.S (14/10/85)

OCTOPUS Remote Access System  
<A Public Domain Utility>\*\*\*\*\*  
(Version 1.9b changes and additions for Interak)

The software for this board, has been declared a public domain utility, and is available FREE OF CHARGE to interested individuals.

If you have a Z-80 based CP/M system (originally written for the GEMINI GALAXY) then this system will run on your machine with few modifications.

OCTOPUS.COM is supplied as a source listing for the Macro-80/Link-80 macro assembler package available from Microsoft. It comprises of six modules (total 150k), and a collection of sample text files for the system.

A rudimentary manual is also supplied, which like the program is subject to continuous development. Currently, version <1.90> now in use. (Version 1.9b Custom Interak)

The software is available from Peter Evans (the author). Leave a message on his Bulletin Board Telephone No: 0272 421196 (Bristol) after 6pm or anytime Sundays.

## NOTE!

There are operational changes in Interak version written in by Tom Evans, to suit his way of running the board, and some more changes are to be made regarding replies in general messaging area, to make things easier for users.

\*\*\*\*\*  
 BULLETIN BOARD HELP  
 \*\*\*\*\*  
 \*\*\*\*\* 14th October 1985 \*\*\*\*\*

# FIRST STEPS FOR BEGINNERS.

Newcomers to the Bulletin Board scene will find it a little more complex than they expect.

- 1: Check carefully that the Board you are calling is operating at the time you call it. Many boards only work limited hours. Their operators are unpaid - and even have jobs, wives and families. If in any doubt, check the full entry in this index. We try to keep it as up to date as possible. If you find an error, leave a message on TAECOMM BBS for Tom Evans on E-Mail.
- 2: Please don't use false names - it makes a mess of the SYSOP's (System Operator) user - log. Certainly don't use more than one if you MUST be pseudonymous.
- 3: Where you see the phrase 'ring-back' it means dial the number; let it ring ONCE; ring off and re-dial. You will then find you will get the high pitched tone that means the board is ready.
- 4: Most boards have a Bulletin Section and some kind of Local Information Section. Its a good idea to print a copy of this on your first call as you need to know the rules and aims of each board. This will take quite a time on first call but pay off in time saved later. Some will send it to you by post, for an s.a.e.
- 5: Many boards have several Special Interest

Groups (SIG's), relating either to particular micro's or activities. Make a note of any that particularly interest you, to save cost of future calls.

- 6: Most boards have a 'HELP' mode for newcomers. If you print a copy of this you will also save money on further calls.
- 7: Many boards have programmes on offer but this needs to be a 2-way service so offer them any you can share leg-ally with others. It takes some practice to learn the techniques of up- and down-loading, though.
- 8: Running a board is expensive as well as fun, so courtesy requires that we make sure the SYSOP is not out-of-pocket. If you ask for anything, be sure to send a stamped, addressed envelope, and a tape or disk if it is software. Dont ask for repro- duction services if they are'nt off- erred. Time is money, too, and one request may be easy - many are not!!
- 9: Remember, a board only operates on the baud rates shown for it. 1200/75 users, coming from Micronet/Prestel cannot access 300 Baud boards unless they have a suitable Modem AND soft- ware. They may well have difficul- ties even then, as the auto-identif- cation units are still developing. DON'T ring the SYSOP out of hours. Ask your local user group, look in one of the mags, or send an MBX to Clubspot if you are really stuck. When buying a modem, make sure it will handle 300 Baud if you want to use the Bulletin Boards very much.

## A.F.P.A.S. Standards 1983

Standards and Protocols for Free Public Access Bulletin Boards Published by :-  
 The Association of Free Public Access Systems

\*\*\*\*\*  
 \* These Protocols and Notes were drawn up and agreed by the \*  
 \* Association of Free Public Access Systems in 1983. \*  
 \* Further Permission is hereby given for any other party to \*  
 \* publish all or part of this document without change so \*  
 \* long as this notice is included with each such use. \*  
 \*\*\*\*\*

1. These standards were agreed by the Association of Free Public Access Systems (A.F.P.A.S.) in March 1983.
2. The standards will be implemented on Public Bulletin Boards connected to the Public Switched Telephone Network.
3. Frequencies and Baud Rates to be used.
- 3.a. The tones used will be to CCITT Standards using 300 baud (V.21) definitions.
- 3.b. A secondary option of 1200 baud Transmission and 75 baud reception (V.23) may optionally also be used.
- 3.c. Bell System tones will not generally be made available except as a late night option after 00:00 hours and before 09:00 hours.
4. Information will be sent using A.S.C.I.I. encoding of all text for display
5. Graphics whether to Prestel/Teletext standards or to N.A.F.L.P.S. standards shall not be used unless confined to a separate area of the bulletin board.
6. Serial Word Lengths Allowable.
- 6.a. All boards shall be able to accept calls in a 7 data-bit word format with: 1 Start-Bit + 7 Data-Bits + 1 Even Parity-Bit + 1 Stop-Bit



- 6.b. To facilitate the "Christensen Modem Protocols boards may also be run in an 8 data-bit format with no parity bit present. The conditions in 6.a. shall still apply.
- 6.c. Parity bits may be generated, but should not be checked on the reception of text when working as described in 6.a.
7. Certain non-text control codes shall have special purposes as follows:-
- 7.a. X-On / X-Off
- 7.a.i. On the receipt of an X-Off signal (Control-S, DC3 or Hexadecimal 13) the receiving host bulletin board shall immediately cease transmission of characters after the completion of the current character (10 serial bits).
- 7.a.ii. On the receipt of an X-On signal (Control-Q, DC1 or Hexadecimal 11) the transmission shall be continued again from the point at which it ceased.
- 7.a.iii. Optionally the system may allow continuation of text after the receipt of any character. This is to facilitate naive user use.
- 7.b. Automatic Log-On
- 7.b.i. The Host system may optionally allow automatic user log-on. The Host system will initiate this by sending a single Control-E (Decimal 5).
- 7.b.ii. The caller shall reply with an upper case A.S.C.I.I. string of the following form:- FIRST-NAME;LAST-NAME;LOCATION<Carriage-Return>
- 7.b.iii. If the caller does not reply in a string as above then the system will prompt the caller for a manual log-on procedure.
- 7.c. Buffer Control
- 7.c.i. To facilitate the accurate reception of data-files the board may send a signal to the incoming caller instructing the caller's terminal to open an empty buffer area in memory and to accept all characters in a continuous stream into that buffer. In order to open the buffer the code Control-R shall be sent.
- 7.c.ii. On receipt of a Control-T code the buffer shall be closed and no more characters added to it.
- 7.c.iii. The user should have some way of storing the buffer contents to a permanent form of storage.
- 7.c.iv. The buffer open and close commands should not themselves be stored in the buffer.
- 7.d. In case of a wrongly typed character Control-H Hexadecimal 8 shall be sent to act as a back-space character.
8. Data File Transmissions
- 8.a. A.S.C.I.I. Text data files may be sent by either method 8.c.i. or 8.c.3. detailed below.
- 8.b. Binary data files ( i.e. those containing any non-printable A.S.C.I.I. characters ) may be sent by either method 8.c.ii or 8.c.iii.
- 8.c. There are three acceptable methods for file transmission.
- 8.c.i. Pure A.S.C.I.I. text optionally used with the buffer control codes described in Paragraph 7.c.
- 8.c.ii. As expanded hexadecimal A.S.C.I.I. for example Binary 10011100 would be sent as two A.S.C.I.I. text characters "9" and "C".
- 8.c.iii. By using the "Modem" series of protocols for the transmission of data in 128 byte check-summed blocks as devised by Christensen. This protocol includes full handshaking and re-transmission of blocks incorrectly received. The software and algorithms are Public Domain Programs and may be obtained from the CP/M User Group.

[Termination message]

\*\* Thank you for calling \*\*  
 \*\*\* Please Hang-up Now! \*\*\*

## DAVIDS PAGE

## "AUNTIE DAVID'S PAGE"

Hello members, I'm your new Auntie David. (Known also as David Parkins of Greenbank Electronics, but this is my day off.) I am grateful to Bob Eldridge for suggesting my new title. I quite like being called Auntie, because to me it represents a pun on the prefix "anti-". This suits me because there are many things I am "anti-", and am glad of the opportunity to come out of the closet and moan at the world from time to time.

But the main attraction to Bob and me of the title Auntie is that it pokes a bit of fun at the "Uncles" of the computer world. Most computers and organisations seem to have their "Uncles", so we think the Interaktion Group should go further, and have "Aunties" instead.

I think Bob was a little nervous that I might hit him with my handbag if he started to call me "Auntie" before I squared it with my wife, which is why he has so far given this piece the unoffensive title "David's Page".

I have been intending to write something for the newsletter for quite a while now, but somehow I have never managed it before the printing deadline, and so I am in a permanent state of continually intending to write something for the "next" issue. Although I always enjoy writing driven like this (having to read it would be a different matter) I always have the excuse that if I have time to write anything I should be spending it on my true work, which is the never ending story of manuals and documentation for the cash paying Interak customers.

Bob has devised a clever way of forcing me to fill this page: he has prepared the entire newsletter completely, and sent it for printing with a great white space here for me to fill. He knows that in this way he will force me to write something since I can't bear to waste paper printing blank spaces. (This page is therefore the one page which is totally outside the editor's control; he will be as surprised as anybody to see what I put here, and he will have to stress that he disclaims all responsibility.)

I know what I'd like to see here and hope to carry out some experiments on filling the space with some of my favourite pictures. Unfortunately I fear that the photo reduction controls on our Xerox copier are insufficient to cope with my plans for illustrated diagrams of Samantha Fox.

Nice One, Bob, Tom, Pete

I am glad however to be able to write something Bob won't see until it's published, because I do want to use this space to say on behalf of all the readers of this publication how much we appreciate the work that Bob is putting in as Editor. It is a thankless task (and, contrary to general belief, entirely unpaid, in fact it costs Bob money as well as time to do all this work for you.) The same goes for Pete Vella and Tom Evans. Most members of the group evidently do appreciate the work these people put in, but I hope that the odd person who may have some criticism or complaint will remember that the group is run on an entirely voluntary basis and would collapse entirely if it were not for the work these chaps do. Thanks men!

Back to the newsletter though. Bob is to be congratulated on the new format and layout of the newsletter. If you have anything nice to say about the new format I am sure Bob would like to hear it. (If you don't have anything nice to say, then don't bother, unless of course you are willing to join in and show us how it should be done!)

The main reason for the change in print size (apart from the wish to boost the sales of magnifying spectacles for the ophthalmic industries), is to reduce the time taken to print

the newsletter, without reducing the amount of material included. The existing cost of printing the newsletter, collating it, envelopes, postage etc., runs into several thousands of pounds per year, but income unfortunately doesn't, so quicker printing has to be done without increasing costs any more. (The difference between income and expenditure, the loss in other words, is currently made up by Greenbank Electronics - luckily Auntie David has some influence in high places! - but it spoils the independence of the group if it has to rely on a sponsor to cover costs.)

If the newsletter can be produced for less than the cost of the subscription then we can certainly go on a recruiting drive, because there should be far more members than we have at present, (although this is not to knock the present number of over 400, which is highly creditable for a specialist computer such as Interak). However tens of thousands of Interak boards have been sold, so where are the users?

I am always quite mystified in my daytime job (at Greenbank Electronics) to hear from users who have not joined the group. Often a user has a query on some aspect of the computer, which has been already been covered in the newsletter pages, so I suggest that he look in his newsletter on page such and such for the answer. Too often I get the reply "Oh, I haven't bothered to join the user group; there's nothing there that I'd be interested in", but the enquirer is always grateful to have a photocopy of the article in question, even though it has cost him several pounds on the telephone to get it. Why don't such users support the group which has been set up expressly to support them?

My own reckoning is that for every hundred members most are appreciative of the work we're doing. Perhaps 10% are professional detractors who enjoy pointing out that say "Personal Computer World" is thicker and more colourful and costs less per issue (forgetting that they have a circulation of 40,000 or more, and a colossal income from commercial advertising), but only one or 2 people in each hundred are willing to be an active contributor, like Bob, Tom and Pete, or any of the people who have taken the trouble to send in letters, articles and programs etc. These poor one or 2 percent have to produce enough material to keep 400-plus members happy. If we can increase the membership to a thousand or two, then there will be a corresponding increase in the number of contributions, and the extra income can be used to improve printing and distribution and for other purposes.

I like to join every computer group I can, so that I can see what the others are up to. I am very favourably impressed with Interaktion compared with many other specialist groups. At about Issue 7 or 8 these groups seem to fizzle out, and we read plaintive cries from the editors, saying "If we don't get any articles sent in soon, there'll be nothing in the newsletter!", and, "Since manufacturer YYYY has stopped making our computer, there is no point in carrying on, and this is the last issue. Goodbye", and so on.

Bob tells me that the files are bulging with material for future newsletters, there is no slackening of interest in the group, indeed the main complaint is that people are clamouring for more, and of course manufacturer XXXX (Greenbank Electronics) has not discontinued making Interaks. Here we are at Issue 14, and still going strong!

TIME'S UP!

Oh dear, with all my rambling as above, I haven't got time now to get on to all the things I should have been talking about (HD64180, bigger RAMs, hard disks, CP/M Plus, etc, etc). Silly Auntie!

## LETTERS

Zambia National Insurance Brokers Ltd,  
P.O. Box 60689,  
LIVINGSTONE,  
ZAMBIA.

Dear Sir,

I should like to thank you very much for the information you sent me on the Interak 1 system. I think this is just my kind of personal computer.

I first came to know what computers really were when I attended a course in insurance which included an introductory subject on computers. Since then I have become so interested in computers, particularly personal computers, that the subject is an obsession to me. I am always thinking and day dreaming about computers, and I devour all information on computers which I come across. Unfortunately one does not easily get a regular flow of information on the subject here in this country since there are no computer magazines available and the few books that are often do not cover micro-computers adequately.

In spite of this, nonetheless, I have been able to acquire more than an elementary understanding of both computer hardware and software. I have a basic knowledge on electronics and this has been helpful in this regard. But of course there is lots more to learn.

My greatest wish now is to have a micro-computer of my own. I can not buy one here simply because there are no personal computers on sale as far as I know. There are of course a number of people that have micro's here but then they must have bought them outside.

Actually even if they were available here at the current rate of inflation the prices would be astronomical. The ZX80 for example, which may be bought there for about 50 pounds would not sell at less than the equivalent of 200 pounds here in Zambia. Aside from this because of the problem that a dealer would have in getting foreign exchange allocation to import what may be termed as "luxury" there is likely to be a limited choice of computers and the hardware and software support is likely to be inadequate.

What one requires here therefore is a system that is easily adaptable and expandable and one which uses "Standard" components. In other words what one needs here is the Interak 1 system! I like the system even more because being a do-it-yourself fan the opportunity to build my own computer is one I wouldn't like to let pass for anything. The system would also be affordable for me if I could buy it in parts. Unfortunately for reasons of foreign exchange allocation I would have to acquire a whole workable system at once.

This, however, is not as big a problem as that of obtaining the foreign currency. Like many other developing third world countries my country is experiencing a very poor balance of trade such that the allocation of foreign exchange for imports has to be tightly controlled.

According to my bank for me to bring in the Interak 1, I need to acquire an import licence from the government after which I can then approach the bank to be considered for allocation of the necessary foreign currency.

By all indications therefore I can not see myself putting in an order for the computer any time this year. But my mind is set on the Interak and I won't be discouraged by how long it takes me to acquire it.

Probably I could request you to consider making a charitable donation of an Interak to a computer fanatic in Africa. That would be a very appreciable gift indeed!

In the meantime, in preparation for the day when I may acquire an Interak 1 System, I am trying to expand on my computer knowledge and keep abreast with developments. In this regard I would like to subscribe to a magazine on computing and I am at the moment looking for a suitable one. I would love to have any suggestions from you on this and also any information you are able to offer on computers.

I would be very happy to hear from you.

Yours sincerely,  
Aaron Chiseyengi.

[ED- How lucky we are in this country to be able to freely trade. My only suggestion is to the membership who may have old cards that they no longer require to send out to you. Perhaps you could donate a small sum in Zambian currency to a local childrens charity for each card recieved from one of us. I don't know how you could get a rack, but perhaps one could be fashioned locally. I would also advise joining the CPMUGUK as the quarterly journal is always full of readable computer stuff. Write to them at 72 Mill road, Hawley, Dartford, Kent, DA2 7RZ. And keep us informed of developments and we all wish you the best of luck with your quest.]

38 Castle road,  
Salisbury,  
Wiltshire.

Dear everybody out there who like me is looking for software to use on their computer just like me.

If you are still reading this then hello. It's a comfort to know that not all of you are using big 'I' for monitoring the heart beat of pregnant marsupials or calculating the regularity of a pulsars emissions compared with the state of the United Nations canteen tea.

I think it only fair to say that there is a lot of software about. Unfortunately it does not seem to appear in the list at the rear of Interaktion. This means that most of us never get to see any one elses work.

Mel Saunders has tried to help with his tapes but this is still a bit hit and miss. Whilst I enjoy hearing and talking with Mel, I will write back Mel, I can see that some may be intimidated or embarrassed if they felt that others saw their work.

First of all, many of us are hobbists and not professional programmers. Therefore in our circle there is no such thing as a bad program. Each of us sets a problem and then struggles for the solution. This may be to keep the aliens coming at us thick and fast, design a title page, get the computer to recognise certain shapes on the screen, clear part of a screen fast, etc.



Once we have completed the task do we say to ourselves "I wonder if there was a better way to do it?". Very often while looking through a book or magazine I will see a solution. Sometimes I may see a program that could be good if something was changed or an addition made. It may give me ideas for something different. How much nicer it would be if all this came from the users themselves. YOU!

Because of the work load that our dear editor has, maybe in the letters section we could 'advertise' our software. It may be that a small charge could be made. For instance, a tape costs 50p, postage is about 20p, there is the packing (although an envelope will do for a tape). This comes to about £1. If we allowed £2 for a tape, this would be reasonable.

If on each tape you had either 1 big program or several smaller programs then it would be worthwhile sending a tape. If you wrote in your letter what it was that you had, what it did, and an honest appraisal of its standard then we could write to each other requesting a tape.

If any program that you received you felt was really good then this could be forwarded to someone to assemble a tape and sell it to users complete for a fee of say \$5 and use any profit made for the benefit of the user group.

Of course none of this means that you cannot sell a program for more yourself. If it is worth it then someone is bound to comment or maybe someone could appraise any software independently.

If you have programs that need assistance to complete or to get working or even ideas that others could work on then all of this would be useful.

Well lets hope that this letter spurs us all on to action. If there are any comments then lets here from you.

May your bytes not.  
Bruce A. Joyce.

[ED- Thanks Bruce for an interesting letter. What you are saying is that we need a public domain tape library. If you were willing to be the librarian then it could be done. What you would do is provide users with a list of software in some sort of catalogue and respond to their requests for tapes. If you charged a reasonable fee to cover costs and the time, no-one would object. I could provide you with a page or two in the newsletter to update users who would contact you for the full "Tape library listings". It is a much needed service and of course you would join the committee of the IUGN. Perhaps you could let me know the rules and details of the library for publication in IUGN 15. Oh! and of course it would need a name.]

43 Staveley Road,  
Ashford Common,  
Middlesex,  
TW15 1TF.

Dear Mr Vella,

I am not interested in the games side of the activities, but have an urgent need for an understanding of CP/M and disk systems. Have you got any copies of the back numbers covering this? If you have, then my subscription could start from a date to cover these back numbers, if that is easier, or tell me what you have available. Copies of the articles alone would be adequate, but the full issue would also be ok as I wish to get a picture of what has been happening.

Do you publish a list of members? This would be useful to many of us, and could encourage local contacts though it might be best to get member's agreement first. You could start it going by putting a little section in the journal under the heading ...

The following members wish to contact anyone in their area

... giving name and address and any special interest.

My insertion is : -

General interest, Disk systems, CPM, Bus standards. Not games.

Other contacts might follow by a snowball effect, it is likely that only a few would need to advertise, the others would follow. You would find yourself in the centre as an organiser, but at least you would get more done with possibly much less effort. It could be hectic at first.

My origin is in Electronics Engineering, so you will understand that I do not do very well with programming. I am interested in the development of the standard bus, and would much like to see it accommodate the 6502 as well as the 8086. As far as I can remember, the 80 bus was adapted from a bus used for the 6800 in the early days, and as the 6800 was derived from the 6500 series, there could still be a chance to make a really common bus after all this time.

The ISBUS must have quite a lot in common with the 80 bus. Other than pin out.

See you again, Yours faithfully

B.A.V.Young.

[ED- Back issues can be obtained from David of Greenbank. You should join the CPMUGUK, 72 Mill Road, Hawley, Dartford, Kent, DA2 7RZ. and ask for back issues as this club is devoted to CP/M and has a wealth of information for its members. We do print a list of members and each controls the publication of his details. Good idea about swapping contacts. Perhaps you would like to act as a central coordinator so as to preserve peoples privacy. I.e they would write to you for contacts in their area and you would put them in touch with each other, let me know if this is a possibility and of course I will help all I can with space in the mag. The 6502 is not as powerful as the Z80 and so there is little point in using it instead, as for the 8086 it offers no real gains over the industry standard 8 bit Z80. The Z80 wins every time from an electronic point of view and it has the most readable numonics ever produced, roll on the Z800. As for the ISBUS, it offers the most flexibility of any bus I have yet come accross, it still has 43 pins that are to be used as the machine evolves. Did you know that the Interak is the first evolving computer. As the other makers come round to this method of coping with growth, rather than by junking machines at each step, it is quite possible that ISBUS (established 10 years ago) will be adopted. Ask David for a copy of the ISBUS structure and let us know what you think of it. Perhaps an article comparing ISBUS with it for-runners would be interesting, any offers?]



59b Elizabeth ave,  
Islington,  
London,  
N1 3BQ.  
01-226-8624

Dear Mr Vella,

Thank you very much for spairing me your time on the phone the other night. I enclose a cheque for £7 to cover subscriptions for Interaktion for one year.

I am giving very serious consideration to constructing the Interak system and would appreciate as much information as possible on software support etc, any extra data on the 2800, (Hitachi), CP/M 2.23, CP/M 3. I would be very grateful.

Yours Faithfully  
Paul Hobbs.

[ED- Join the CPMUGUK, address is elsewhere in this issue. Several good books are in the library. Write to the librarian. Thanks for the subs.]

#### SOFTWARE

You may use this section to sell software to other users. Send a brief description of your product giving details of its distribution and price, to the EDITOR. Note that you will be responsible for the support of your own product. The newsletter cannot be held responsible for or get involved with duff code or distributors. Of course we will publish letters deriding any product that fails to live up to its claims.

See CONTACTS page at the end of this issue for "ORDER FROM" addresses. Software supplied is the responsibility of the "ORDER FROM". Please deal directly with the "ORDER FROM" in the event of bugs ect.

#### DISK SOFTWARE

##### CP/M 2.2

The industry standard disk operating system for the Interak computer. Needs a VDU 2K. Customised BIOS by Wolf Schroeder with customised MOVCPM. Supplied with multi diameter diskette Formatter and considerable extra utilities not normally provided by CP/M implimentations. Ready to Boot up and go on a 3.5" disk.

Contact Greenbank Electronics for further details.

##### ZYBASIC 4

Runs to CP/M 2.2 with a VDU 2K. Any standard BIOS. Supports CP/M disk file program storage. Enhanced Keyword set, memory manager to allow correct use of available memory. 11 characters long variable names, Multi-dimensioned arrays of up to 32767 dims each up to 32767. Fully downward compatible with previous versions and will load programs from tape or disk and save them to tape or disk. Supplied on a 3.5" disk with run time program source files. New version of the manual is available separately. Previous users can be upgraded at cost. At the moment it suffers from running rather slowly, but future releases are planned to overcome this.

Contact Greenbank Electronics for further details.

#### TAPE SOFTWARE

#### MACHINE CODE

NAME	DESCRIPTION	VDU	ORDER FROM	COST
FIGFORTH	FORTH COMPILER	2K	P.VELLA	£15.00
INTERPLAY	BULLETIN BOARD DRIVER	2K	M&M ELECTRONICS	£ 4.00
MEGABUG	DEBUG/TRAINING PACKAGE	2K	P.VELLA	£13.00
VELTEXT	TEXT EDITOR	2K	P.VELLA	£ 5.00
XTAL BASIC	14K BASIC	2K	P.VELLA	£40.00
ZYBASIC 3A	INTERAK BASIC (TAPE)	2K	GREENBANK	£15.95
ZYBASIC 3C	INTERAK BASIC (ROM)	2K	GREENBANK	£27.75
ZYMON 2.V203	INTERAK MONITOR	2K	GREENBANK	£15.95

#### XTAL BASIC

NAME	DESCRIPTION	VDU	ORDER FROM	COST
AWARI	GAME	2K	M.SAUNDERS	PP
BIORYTHMS		2K	M.SAUNDERS	PP
CHAR DES	CHARACTER DESIGNER	2K	M.SAUNDERS	£ 5.50
I-SPY	GAME	2K	M.SAUNDERS	PP
SOUND DEV	SOUND DEVELOPMENT	2K	M.SAUNDERS	£ 5.50

Key: PP = Postage & packing.  
POA = Please enquire (Phone for price.)

# CONTACTS

CONTACT TAPES. Communicate with other members by cassette tape.  
Point Contact tapes, 7 Drumcliff Rd, Thurnby Lodge,  
Leicester, LE5 2LH.

BACK ISSUES... Can be obtained from:-  
D.Parkins, Greenbank Electronics, 460 New Chester road,  
Rock Ferry, Birkenhead, Merseyside, L42 2AE.

BOOKS..... Lend, borrow, and swap books via :-  
R.E.Bowyer, 45 Ford drive, Yarnfield, Stone, Staffs.

DATA SHEETS... Swap, borrow, lend, chip data sheets  
7 Drumcliff road, Thurnby Lodge, Leicester, LE5 2LH.

EDITOR..... Send submissions to :-  
R.Eldridge, 28 Wycherley Close, Blackheath, London, SE3 7QH.

GREENBANK .... D.Parkins, Greenbank Electronics, 460 New Chester road,  
Rock Ferry, Birkenhead, Merseyside, L42 2AE.

M&M ELECTRONICS, 8 Ayre view, Bride, Isle of man.

M.SAUNDERS ... M.Saunders, 7 Drumcliff road, Thurnby Lodge, Leicester, LE5 2LH.

MEMBERSHIP.... To join, renew or change your details contact :-  
Tom Evans, 129 Cranbourne Waye, Hayes, Middlesex, UB4 0HR.

P.VELLA ..... 19 Ford Drive, Yarnfield, Staffs.

R.ELDRIDGE ... 28 Wycherley Close, Blackheath, London, SE3 7QH.

SUBSCRIPTIONS. For information and payments please contact :-  
Tom Evans, 129 Cranbourne Waye, Hayes, Middlesex, UB4 0HR.

## STOP PRESS

TAECON can now support 1200/75 or 300/300 baud users. Automatic selection. Set your modem to 1200/75 and dial up to see the speed increase.

## 8" DISK USERS, WOLF SCHROEDER'S CP/M 2.2 SETB8SD UTILITY

Many of the users of 8" disks in the Interak system are moving over to 3.5", the attractions of the smaller size outweighing the loss of the superior performance of the 8" size. However they still want to keep one 8" drive in their system (often as drive C or D) so that they can directly draw from the pool of a thousand or more public domain 8" library disks. Of course Interak uses double density normally, but the late Wolf Schroeder provided a utility in his Interak CP/M 2.2 implementation called "SETB8SD", which ostensibly sets the "B" drive to standard single sided single density operation in the IBM 3740 format, to read and write standard distribution 8" disks.

I have often been asked for the changes to make the equivalent program "SETC8SD" or "SETD8SD" to suit the occasions when it is not convenient to have an 8" drive as drive B, and have been intending for some time to investigate how to do this.

As usual the users are cleverer than I, and I am indebted to Mr Frank Johnson of BT who has just pointed out that no changes whatever are required to "SETB8SD" for this purpose! As I knew (but had forgotten) there are only two disk drive parameter tables in use at any one time; for example in a mixed system with a 3.5" "A" disk one table will be for 3.5" disks and the other will be for 8". The SETB8SD program simply alters the second table to suit 8" single density, and therefore it will affect any of the drives which use that table, ie all of the 8" drives in a mixed system! (The SETB8SD program received its confusing title when it was used in an original completely 8" system which was set up so that the A drive was 8" double density and it was only the B drive which used the second table when single density operation was required.)

David M Parkins, Greenbank Electronics.

## MORE STOP PRESS

If they arrive in time, we hope to include some extra sheets as part of this newsletter - something from Charlie Bridgstock (disk librarian), and Tom Evans (membership secretary).

Signed: Blackett and Creasen Ltd, Interaktion Print Works.

# INTERAKTION DISK LIBRARY.

A public domain software library is being set up for the user group on 3.5 DSDD disks. The majority of the software originates from the UK CP/M User Group, and I am indebted to David Parkins who provided most of the material. Contributions to the library will be gratefully received. These must be original or in the public domain. Programs from magazine listings should not be submitted unless permission to do so has been obtained from the Editor. If original, please give as much information as possible in a separate .DOC file. The usual rules apply; Programs may be given away but not resold and copyright notices should not be removed from the programs. As not all the programs have been tested there may be bugs. If you find any please let me know especially if you have also found a solution.

Charges: Copying charge. 2.00  
Media charge. 3.00

If you wish to supply your own disks it is advisable to pack them between two pieces of hardboard or similar material as I understand it is possible for them to be cracked in the Post if sent in an envelope or Jiffy Bag without protection.

Cheques or Postal Orders (no cash, please) should be crossed and made payable to INTERAKTION and sent to:

C.Bridgstock,  
32, Wimborne Avenue,  
Thingwall, Wirral,  
MERSEYSIDE. L61. 7UL.

The following disks are available:-

IUG 1.

Languages. Forth-83 & Lisp.

Filename.	Type.	Size.	Remarks.
F83	.Com	24k	Forth-83 for cp/m by Perry & Laxen.
Readme	.80	20k	F83 Instructions.
F83-fixs	.txt	8k	F83 version 1.0 update.
Basic	.Blk	20k	Basic compiler in F83.
Clock	.Blk	12k	Source for a calendar example.
Cpu8080	.Blk	44k	8080 dependent code.
Expand80	.Blk	8k	Original source to Expand.Huf.
Extend80	.Blk	32k	Extensions source.
Huffman	.Blk	44k	Compression program.
Kernel80	.Blk	188k	Kernel source.
Meta80	.Blk	52k	Metacompiler source.
Utility	.Blk	112k	Utility source.
Usq	.Com	4k	Unsqueezees squeezed files.
Lisp	.Com	28k	Updated Lisp.
Initlisp	----	4k	
Initlisp	.Stb	4k	
Lisp	.Doc	16k	Instructions.
Total		588k	

The following books are helpful in using F83:

Inside F83 by C.H.Ting.  
Mastering Forth by Anderson & Tracy.  
Forth. A text and reference by Kelly & Spies.

IUG 2.

Languages. Cobol, Small-C Compiler & Small-C programs. Adventure game.

Filename.	Type.	Size.	Remarks.
Cinterp	.Com	16k	Cobol Interpreter.
Cobol	.Com	16k	N.P.S. Micro Cobol Ver 2.1
Exec	.Com	8k	" " " " " "
Part 2	.Com	16k	" " " " " "
Cobol	.Doc	40k	Instructions.
Add	.Cbl	4k	Cobol progs. See Cobol.Doc
Cbl1	.Cbl	4k	" " " " " "
Cbl2	.Cbl	4k	" " " " " "
Demo	.Cbl	4k	" " " " " "
Seq	.Cbl	4k	" " " " " "
Demo	.Cin	4k	" " " " " "
Demo	.Lst	4k	" " " " " "
Cbl1	.Cin	4k	" " " " " "
Cbl1	.Lst	4k	" " " " " "
Cbl2	.Cin	4k	" " " " " "
Cbl2	.Lst	4k	" " " " " "
Cbl1	.Fil	4k	" " " " " "
Add	.Cin	4k	" " " " " "
Add	.Lst	4k	" " " " " "
Zsc-1	.C	20k	Small-C Compiler.
Zsc-2	.C	20k	Small-C Compiler.
Zsc-comp	.Lib	12k	" " " " " "
Zsmall	.Com	24k	" " " " " "
Zsmall	.Doc	16k	Instructions.
C-util	.Doc	4k	Doc. on Tab, List, Filechop, and Unload.
Conio	.Lib	8k	Small-C libraries.
Crun	.Lib	8k	" " " " " "
Czmon	.C	12k	Sample Small-C program.
Czmon	.Com	8k	" " " " " "
File	.Lib	12k	Small-C Library.
Filechop	.C	4k	Chop large files into sections.
Filechop	.Com	4k	" " " " " "
List	.C	4k	Sample Small-C program.
List	.Com	4k	" " " " " "
Numio	.Lib	4k	Small-C Library.
Tab	.C	4k	Sample Small-C program.
Tab	.Com	4k	" " " " " "
Z80asmUK	.Com	12k	Z80 Assembler for use with Small-C.
Z80docUK	.Doc	8k	Instructions.
Adv	.Com	36k	Expanded Adventure Game.
Adv	.Doc	4k	Instructions.
Adv	.Dat	32k	" " " " " "
Adv	.Ptr	4k	" " " " " "
Adv	.Dat	108k	" " " " " "
Adv	.Ptr	16k	" " " " " "
Total		548k	

(PTO for IUG 3)

## IUG 3.

## CP/M Utilities.

Filename.	Type.	Size.	Remarks.
Bckup	.Com	4k	Disk backup program.
Compare	.Com	4k	Binary file comparison.
Copy	.Com	4k	Disk copy program.
Cpack	.Doc	12k	Documentation for Bckup, Compare, Restore, Copy and Sortdir.
Dos	.Com	4k	Finds address of CCP/BDOS & size of TPA.
Restore	.Com	4k	Restores erased files.
Sortdir	.Com	4k	Sorted directory program.
Dutil	.Com	12k	Revision of disk utility with extended features.
Xlate2	.Com	8k	Translates Intel 8088 source code to Zilog Z80 code.
Dirscan	.Com	8k	Scans directory.
Indexer	.Com	20k	Creates an index for a book or any document automatically. Includes a sample program.
Indexer	.Sub	4k	
Pzkey	.Inx	4k	
Pzkey	.Tre	4k	
Indexer	.Doc	16k	Documentation.
Oki	.Com	8k	Menu file to send code to Okidata 82/83.
Epson	.Com	8k	Menu file to send code to Epson MX printers to set type size.
Xdir	.Com	4k	Extended directory.
Sub	.Com	16k	Menu file to run the major CP/M command files.
Erase	.Com	8k	"User friendly" erase.
Signs	.Com	12k	Formatting program for both 80 and 132 column printers.
Signs11	.Com	12k	
Signs	.Txt	4k	
Signs	.Doc	4k	
Signs6	.Com	12k	
Font	.Dat	4k	
Delbr	.Com	16k	To extract .Lbr files type Delbr Filename.
Delbr11	.Com	16k	Extracts .Lbr files CP/M80, 86 and Msdos.
Ftnote13	.Com	16k	Produces footnotes with Wordstar.
Ftnote13	.Doc	24k	Instructions.
QK12	.Com	4k	Redefines keyboard.
QK12	.Bug	4k	
QK12	.Doc	12k	Documentation.
Basfk	.Asm	12k	Routine to load Cifer Vdu function keys with Basic statements.
Cat	.Com	4k	Catalogue System.
Cat2	.Com	4k	
Crck	.Com	4k	Checksum program.
Crcklist	.Crc	4k	Checksum of some files on this disk.
Ddisk	.Com	8k	Improved disk debug program.
Ddisk	.Mac	36k	Source of the above program.
Mast	.Cat	4k	Sample catalogue file.
Prtht/21	.Com	4k	Print listings with date and time.
Prtht/21	.Asm	32k	Source of above.
Prtht	.Doc	4k	Documentation.
Pws/5	.Asm	32k	Wordstar patcher for intelligent terminals/printers
Pws	.Doc	4k	Instructions for above.

## IUG 3. (Continued)

Filename.	Type.	Size.	Remarks.
TestZ80	.Zsm	4k	Test source file for Z80 Assembler.
Z80asmUK	.Asm	60k	Improved Z80 Assembler.
Z80asmUK	.Com	12k	
Z80docUK	.Doc	8k	Documentation for Assembler.
Udcat	.Com	12k	Improved disk catalogue program.
Udcat	.Mac	20k	
Udcat	.Doc	8k	Documentation for above.
Total. 568k			





# "Interaktion"... production, and finance etc.

---

by

Tom "why ask me, I'm only the treasurer" Evans.

Hopefully 1987 will see a re-vitalised Interaktion, with issues of the Newsletter being published on time (who laughed?). I understand that a different production method is being used on the latest issues, resulting in a faster, and more economical turn-around per issue. Economics is proving to be the major concern in production, this also has an effect on the time it takes to get the copies out to you the readers. At the moment Greenbank Electronics is absorbing the whole cost of production and distribution, this must be balanced soon by substantial contributions by the User Group. I will soon be able to check the financial state of Interaktions affairs, a new account will be opened at Lloyds Bank, Hayes, and any existing monies will be transferred by Pete Vella from Stafford along with statements, payout slips, and invoices. This will enable me to make up a statement of accounts to be published within this journal. At the moment, I have no way of knowing who is up to date, or behind with their subs, but this will all soon be taken into account in the very near future, and accounts will be submitted yearly for publication, and scrutiny.

There may be a possibility to interest Electronic, and Computer Peripheral suppliers to place adverts in the Newsletter, this will help to enable us to gain monetary independence, also these advertisers may be persuaded (rubber hose job) to give discounts to Interaktion members.

Of course everything will not come good with just money, the whole exercise is to make a healthy user group with exchanges of ideas, and "Interaktion" between members (no rude thoughts please), so please submit articles, questions etc, your monetary subscription is not the "be all, end all" of your participation, at least it shouldn't be, after all we have the makings of what could be a great social group. It has been noticed that in the past, only a few dedicated members have made any effort to contribute to the contents of the publication, and if you look back through the issues, you will see the same few names cropping up time after time, these dedicated few have been invaluable, but I am sure they must get fed-up with no feed back from their articles. Surely the group doesn't consist of four hundred or so "dead heads", there must be tons of talent out there, after all we are the do'ers, we make our gear, so lets show off. Well thats the sermon over with, so lets get on.

I hope that you will fill in the small info-sheet (a small start to your group input?), this will help give us some idea as to what you require or expect from the IUGN, plus "local" area lists can be generated so that you can see how many "Interakers" are near you.

Sees yas.....Tom.



# The IUGN needs YOU!

Dear Friends, we need more contributions from the roots of the Interak community, information as to what you actually do with Interak, even if you have made a fully automatic toilet tissue dispenser controlled by Interak, we WANT, no MUST hear about it.

It would be nice to know if any new cards have been designed by yourselves, any new ideas will be welcome. Does anyone need help on a pet project, if you write into the IUGN, perhaps a fellow Interaker can offer some help or an idea to get you over the hump (or they may even cock it up entirely, but thats all part of the fun).

Talking about new cards, isn't it about time we had a new CPU card, maybe a 16 or 32 bit blaster, this of course will bring lots of problems, but thats half the pleasure of machines like Interak. Has anyone actually grafted a different cpu to the Interak bus?? Other cards that are needed (my selfish needs) are, Maths processor, and good hi-res colour graphics, what say you mates, any suggestions (they can be rude ones).

Is there any interest in a group meeting at some convenient location, if so perhaps we can arrange a meet at some mutual place of interest (ie Pub, Motel ). Write or phone and let me know, and I am sure that we can find a central meeting point suitable for all participants. It would be very interesting to get a bunch of Interakers together for a jaw bashing. I understand Dave and John Parkins are also interested in this little adventure.

Bob Eldridge needs your input to continue making the Newsletter interesting, its a mammoth task hunting for new material, so please submit articles, sales/wants, cries for help, old knickers etc to Bob the Editor, on second thoughts, send the old knickers to me.

Tom Evans (Membership Secretary, and old knicker collector).

**\*\* REMEMBER \*\***

**NO INPUT = NO OUTPUT**

# INFO UPDATE (Feeding time for Interak)

Please fill in the details below, and return to Tom Evans (Membership Sec)

Date:

Surname:

Forenames:

House/Flat Number:

Street:

Town:

County:

Post Code:

Country:

Home Phone:

Works Phone:

Male/Female/Hybrid:

Nature of employment:

Pastimes:

Current INTERAK equipment:

Other Computer equipment:

What do you use Interak For?

What would "YOU" like to see available for your Interak?

Pet Hate (what don't you like about Interak or the User Group)

Would you like a "local area" listing of Interak users?

Would you like a listing of users with similar interests?

\*\*\* This information is for INTERNAL IUGN use only! \*\*\*

Please return to Tom Evans. 129, Cranborne Waye, Hayes, Middlesex. UB4 0HR.

## Ta muchly for your time..